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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,939	02/13/2002	Noriyuki Kawaguchi	FUSA 19. 444	8889
26304	7590	03/27/2006	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP			KIM, KEVIN	
575 MADISON AVENUE			ART UNIT	
NEW YORK, NY 10022-2585			PAPER NUMBER	

2611

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/074,939	<b>Applicant(s)</b> KAWAGUCHI ET AL.	
	<b>Examiner</b> Kevin Y. Kim	<b>Art Unit</b> 2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,3-16,24,25,27 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24,25,27 and 31 is/are allowed.
- 6) ☒ Claim(s) 1, 3-7,10,12-14 and 16 is/are rejected.
- 7) ☐ Claim(s) 8,9,11 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 1-11-2006 have been fully considered but they are not persuasive.

Applicant has amended claim 1 by further defining the weighting unit such that "weighting unit adopts 1 as a weighting coefficient if said signal component is greater than a set level." And applicant argues that the Meidan et al patent fails to teach this feature. However, a careful reading of the Meidan et al patent shows that this feature is clearly taught. The Meidan et al patent describes that a data sample received on a branch of a diversity receiver is used if its estimated C/O power ratio (reading on "a prescribed signal component" of the claims) is over a threshold, and the data sample is not used if the ratio is below the threshold. From this description, one can see that the weighting coefficient of "1" is applied to a signal over the threshold and "0" to a signal below the threshold. The Meidan et al patent further teaches several level of confidence such that a data sample of greater confidence level is assigned a greater weighting coefficient. See col. 16, lines 27-31. In other words, the Meidan et al patent teaches that a data sample of full confidence level would be used as is, thus being assigned the weighting coefficient of "1." Thus, data samples of less confidence level would be assigned a weighting coefficient smaller than "1" and yet vary in accordance with the respective confidence level in the range of "0" and "1."

Since the Meidan et al patent also teaches the newly added limitation, as explained above, the rejection of the claim is sustained, as set forth below.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 3-7, 10, 12-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over an admitted prior art in view of Meidan et al (US 5,193,102).

Claims 1, 5, 6 and 10.

The admitted prior art, depicted in Fig. 31 and described at pages 5-7, shows a synchronous CDMA receiver for applying despread processing (7) to multipath signals, applying synchronous detection processing (8) to the despread signals, combining the detection signals (6b) and discriminating the received data (6c) on the basis of the combined signal. Further, the CDMA receiver further includes a weighing unit (page 6, lines 6-9). But the admitted prior art fails to teach the use of the weighing unit to applying “weighting by multiplying the output signal by a weighting coefficient the value of which is smaller than 1 and varies in conformity with to [sic] the level of said signal component and weighting unit adopts 1 as a weighting coefficient if said signal component is greater than a set level” when a signal component on a path is below a set level. In other words, according to the admitted prior art, invalid signals, i.e., signals whose power is less than a minimum are not excluded from weighting while a signal over the threshold is used as is, i.e., is given a weighting coefficient of “1”.

Meidan et al teaches assigning weighting coefficients to fingers of a diversity receiver, where several levels of confidence are used. See Fig. 3 and col. 16, lines 4-36. The implication is that when the estimated C/I power ratio of a signal received on a diversity finger is over the highest threshold the signal is used as is when it is combined with other branch signals and the

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ratio is below the highest threshold, a weighting coefficient to be applied to the signal received on the particular finger is determined based on which one of a plurality of set confidence levels as determined. In other words, a higher C/I ratio would get a greater weighting coefficients, meeting the claim limitation of “weighting by multiplying the output signal by a weighting coefficient the value of which is smaller than 1 and varies in conformity with to [sic] the level of said signal component” because it can be deduced that the value of the weighting coefficient is smaller than 1 unless the C/I exceeds the full confidence level.

Thus, it would have been obvious to one skill in the art at the time the invention was made to apply a weighting coefficient, smaller than 1, to each path proportional to the level of the signal received on the path in the prior art synchronous CDMA receiver, unless the level is over the full confidence level, as taught by Meidan et al for the purpose of combining the multipath signals even if they are determined not to have a full confidence level.

### Claim 3.

Meidan et al discloses that higher C/I ratio would get a greater weighting coefficients. Conversely speaking, the smaller the signal level is “the larger N is made” in a weighting coefficient defined by  $M^{-N}$ .

### Claims 4 and 7

The power of received signal is a well known measure of a channel quality commonly sued as an alternative to the signal to noise ratio C/I, and thus would have been obvious to one skilled in the art at the time the invention was made.

Claims 12 and 13.

Likewise, the received signal level, the average or the larger of absolute values of quadrature signals, a well known measure of a channel quality commonly used as an alternative to the signal to noise ratio C/I, and thus would have been obvious to one skilled in the art at the time the invention was made.

Claim 14.

It would have been obvious to lower the confidence level when the transmission rate of a symbol is lower and the spreading gain is greater since the received signal is received with more confidence.

Claim 16.

It is well established that a searcher finger assigns weighting coefficients to diversity fingers and thus would have been obvious to one skilled in the art at the time the invention was made to use a searcher finger that assigns weighting coefficients to diversity fingers.

***Allowable Subject Matter***

4. Claims 8, 9, 11 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. Claims 24, 25, 27 and 31 are allowed.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

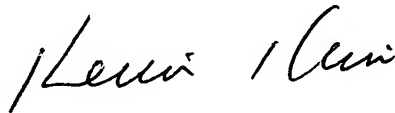
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 11, 2006

A handwritten signature in black ink, appearing to read "Kevin Kim", is written above the printed name.

**KEVIN KIM  
PATENT EXAMINER**